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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/619,094

07/11/2003

David L. Wilson

9005/17

4709

27774

7590

12/28/2004

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EXAMINER

PETKOVSEK, DANIEL J

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/619,094	WILSON, DAVID L.	
	Examiner	Art Unit	
	Daniel J Petkovsek	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-36 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-26 is/are rejected.
- 7) ☒ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on July 11, 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Phan T. H. Palmer
PHAN T. H. PALMER
PRIMARY EXAMINER
12/27/2004

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/5/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

This office action is the first office action on the merits.

Information Disclosure Statement

1. The prior art documents submitted by Applicant in the Information Disclosure Statements filed on April 5, 2004 have been considered and made of record (note attached copy of forms PTO-1449).

Drawings

2. The drawings are objected to because Figure 1 needs to be labeled as "Prior Art", and Figure 3 has informally hand-drawn reference numbers. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 6-10, and 14-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Ellis U.S.P. No. 6,122,418.

Ellis U.S.P. No. 6,122,418 teaches (ABS, Figs. 1, 3, column 3, line 45 through column 5, line 9) an optical device (and inherent method of same) that compensates for dispersion comprising: a plurality of dispersion compensation modules, a first module (S_1 , F_1) including a first input for receiving a WDM optical signal with a specific bandwidth, a second input port, first and second output ports, an element that compensates for dispersion and is wavelength selective so that it directs wavelength(s) falling outside of a band to a second output, and directs wavelength(s) falling inside of a band to a first output; a second module (S_2 , F_2) including a third input coupled to a second output for receiving wavelength(s) falling outside of a band, a fourth input, a third and fourth output, the third output coupled to the second input of the first module, a second element that compensates for dispersion and is wavelength selective so that it directs wavelength(s) falling outside of a second band to a fourth output, and directs wavelength(s) falling inside of a second band to a third output. Regarding claims 2, 3, 17, and 18, the prescribed wavelengths are substantially compensated at a center wavelength, with fringe wavelengths inherently surrounding the center wavelength in both the first and second bands.

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Regarding claim 6, the number of dispersion compensating modules N equals the number of desired (and corresponding undesired) bands.

Regarding claims 7 and 23, a single mode matrix switch (with a fiber) would also inherently compensate for some dispersion.

Regarding claims 8, 19-22, and 24, gratings are used with diffractive purposes, as well as the ability to pass through combined wavelengths. Regarding claims 9, 10, and 25, Ellis '418 discloses using optical amplifiers to correct loss.

Regarding claim 14, see Fig. 3 where a plurality of the dispersion compensation modules are coupled together to increase functionality.

Regarding claims 15 and 16, wavelengths are combined after dispersion compensation, in a plurality of concatenated dispersion compensation modules (up to N modules).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4, 5, 13, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis U.S.P. No. 6,122,418.

Ellis U.S.P. No. 6,122,418 teaches (ABS, Figs. 1, 3, column 3, line 45 through column 5, line 9) an optical device (and inherent method of same) that compensates for dispersion comprising: a plurality of dispersion compensation modules, a first module (S_1 , F_1) including a first input for receiving a WDM optical signal with a specific bandwidth, a second input port,

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first and second output ports, an element that compensates for dispersion and is wavelength selective so that it directs wavelength(s) falling outside of a band to a second output, and directs wavelength(s) falling inside of a band to a first output; a second module (S_2 , F_2) including a third input coupled to a second output for receiving wavelength(s) falling outside of a band, a fourth input, a third and fourth output, the third output coupled to the second input of the first module, a second element that compensates for dispersion and is wavelength selective so that it directs wavelength(s) falling outside of a second band to a fourth output, and directs wavelength(s) falling inside of a second band to a third output.

Ellis '418 does not *explicitly* teach a pair of filter elements acting as one wavelength selective arrangements (claims 4 and 5). Using a single filter element or using a plurality of filter elements to accomplish the same purpose (i.e. passing a desired band and reflecting a desired band) would have been an obvious modification to a person having ordinary skill in the art. The purpose of using two filters instead of one would improve coupling performance and create a redundancy check on the system, to ensure that little to no error can be passed through the dispersion compensation system.

Ellis '418 does not *explicitly* teach a common dispersion compensating element for translating an average zero dispersion wavelength of the prescribed bandwidth to one end of the prescribed bandwidth (claims 13 and 26). This limitation, although not explicitly disclosed, would have been obvious to a person having ordinary skill in the art at the time the invention was made. This limitation would improve the overall dispersion compensation and flexibility of the optical device, and increase the usability of the system in bandwidth applications. This step is not viewed as being novel to the art.

Allowable Subject Matter

7. Claims 27-36 are indicated as having allowable subject material. The relevant prior art of record does not teach or reasonably suggest that this optical system also has a deinterleaver and interleaver coupled to the optical dispersion compensation module(s) to provide even and odd optical signals.

8. Claims 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The relevant prior art of record does not teach or reasonably suggest that this optical system also has a deinterleaver and interleaver coupled to the optical dispersion compensation module(s) to provide even and odd optical signals. Claims 11 is dependent upon claim 1, and claim 12 is dependent upon claim 6, which is dependent upon claim 1.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, with respect to the state of the art of optical dispersion compensation modules that may be cascaded, concatenated, or arranged in series: PTO-892 form references A and B.

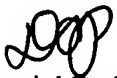
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (571) 272-2355.

The examiner can normally be reached on M-F 8:30-5:00.

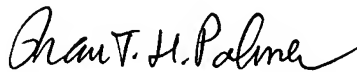
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel Petkovsek
December 23, 2004



PHAN T. H. PALMER
PRIMARY EXAMINER